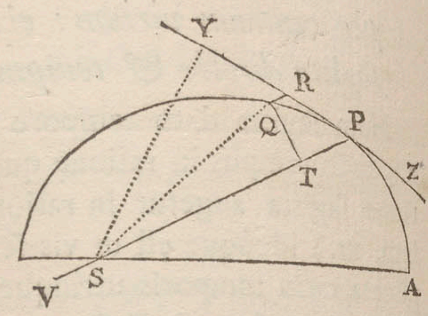
*Corol.* 4. Iiſdem poſitis, eſt vis centripeta ut velocitas bis directe, & chorda illa inverſe. Nam velocitas eſt reciproce ut perpendiculum $SY$ per corol. 1. prop. 1.

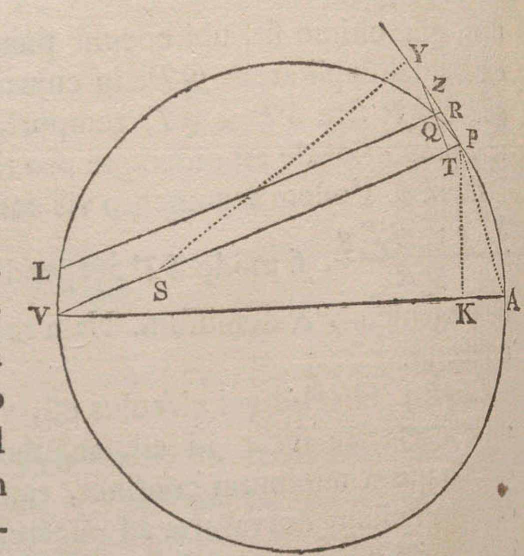



*Corol.* 5. Hinc ſi detur figura quævis curvilinea $APQ$, & in ea detur etiam punctum $S$, ad quod vis centripeta perpetuo dirigitur, inveniri poteſt lex vis centripetæ, qua corpus quodvis $P$ a curſu rectilineo perpetuo retractum in figuræ illius perimetro detinebitur, eamque revolvendo deſcribet. Nimirum computandum eſt vel ſolidum $\frac{SPq \times QTq}{QR}$ vel ſolidum $SYq \times PV$ huic vi reciproce proportionale. Ejus rei dabimus exempla in problematis ſequentibus.

## PROPOSITIO VII. PROBLEMA II.

*Gyretur corpus in circumferentia circuli, requiritur lex vis centripetæ tendentis ad punctum quodcunque datum.*

Eſto circuli circumferentia $VQPA$; punctum datum, ad quod vis ceu ad centrum ſuum tendit, $S$; corpus in circumferentia latum $P$; locus proximus, in quem movebitur $Q$; & circuli tangens ad locum priorem $PRZ$. Per punctum $S$ ducatur chorda $PV$; & acta circuli diametro $VA$, jungatur $AP$; & ad $SP$ demittatur perpendiculum $QT$, quod productum occurrat tangenti $PR$ in $Z$; ac denique per punctum $Q$ agatur $LR$, quæ ipſi $SP$ parallela ſit, & occurrat tum circulo in $L$, tum tangenti $PZ$ in $R$. Et ob ſimilia triangula $ZQR$, $ZTP$, $VPA$; erit $RP$ *quad.* hoc eſt $QRL$ ad $QT$ *quad.*









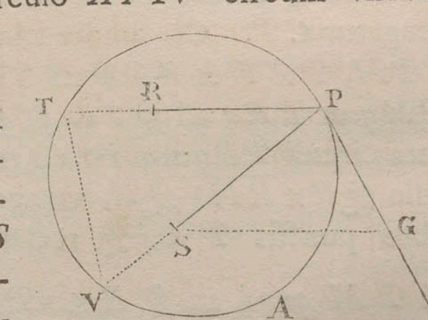

$QT$ *quad.* ut $AV$ *quad.* ad $PV$ *quad.* Ideoque $\frac{QRL \times PV\ quad.}{AV\ quad.}$ æquatur $QT$ *quad.* Ducantur hæc æqualia in $\frac{SP\ quad.}{QR}$, & punctis $P$ & $Q$ coeuntibus ſcribatur $PV$ pro $RL$. Sic fiet $\frac{SP\ quad. \times PV\ cub.}{AV\ quad.}$ æquale $\frac{SP\ quad. \times QT\ quad.}{QR}$. Ergo (per corol. 1. & 5. prop. VI.) vis centripeta eſt reciproce ut $\frac{SPq \times PV\ cub.}{AV\ quad.}$; id eſt (ob datum $AV$ *quad.*) reciproce ut quadratum diſtantiæ ſeu altitudinis $SP$ & cubus chordæ $PV$ conjunctim. *Q. E. I.*

### *Idem aliter.*

Ad tangentem $PR$ productam demittatur perpendiculum $SY$: & ob ſimilia triangula $SYP$, $VPA$; erit $AV$ ad $PV$ ut $SP$ ad $SY$: ideoque $\frac{SP \times PV}{AV}$ æquale $SY$, & $\frac{SP\ quad. \times PV\ cub.}{AV\ quad.}$ æquale $SY\ quad. \times PV$. Et propterea (per. corol. 3. & 5. prop. VI.) vis centripeta eſt reciproce ut $\frac{SPq \times PV\ cub.}{AVq}$, hoc eſt, ob datam $AV$ reciproce ut $SPq \times PV\ cub.$ *Q. E. I.*

*Corol.* 1. Hinc ſi punctum datum $S$, ad quod vis centripeta ſemper tendit, locetur in circumferentia hujus circuli, puta ad $V$; erit vis centripeta reciproce ut quadrato-cubus altitudinis $SP$.

*Corol.* 2. Vis, qua corpus $P$ in circulo $APTV$ circum virium centrum $S$ revolvitur, eſt ad vim, qua corpus idem $P$ in eodem circulo & eodem tempore periodico circum aliud quodvis virium centrum $R$ revolvi poteſt, ut $RP\ quad. \times SP$ ad cubum rectæ $SG$, quæ a primo virium centro $S$ ad orbis tangentem $PG$ ducitur, & diſtantiæ corporis à ſecundo virium centro parallela eſt. Nam per conſtructionem hujus propoſitionis vis prior eſt ad vim poſteriorem ut $RPq \times PT\ cub.$ ad $SPq \times PV\ cub.$



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